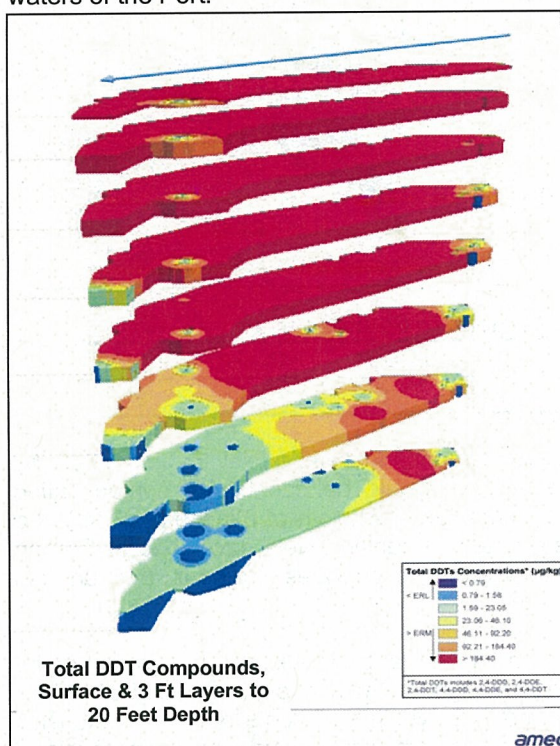


CONSOLIDATED SLIP DDT CONTAMINATION AND CLEANUP

Port of Los Angeles
Engineering Division



Consolidated Slip is a designated Super Fund Site due to DDT contamination downstream of the former Montrose Chemical plant. Consolidated Slip is located in the northern Port of Los Angeles immediately downstream of Dominguez Channel and the highly developed and industrialized Dominguez Watershed. This basin has subsided approximately 18 feet due to historic pumping of the Wilmington oilfield and has also accumulated contaminants from the watershed discharged into the marine waters of the Port.



Sediment quality data show a reservoir of contamination available to marine organisms and subject to erosion and transport throughout the Harbor. These sediments are listed by the California Water Act 303(d) as impaired for the Consolidated Slip water body. Fish body burden advisories are also in place.

Listed pollutants are very high levels of Lead, Mercury, Zinc, Copper, Total DDT & Derivatives, Polychlorinated Biphenyls (PCBs), and Total Polycyclic Aromatic Hydrocarbons (PAHs).

General levels of pollutants are briefly summarized in the accompanying table and compared to marine sediment quality (NOAA Effects Range Low [ERL] and Effects Range Median [ERM]) guidelines based upon toxicity to marine organisms. These data show that the sediments are contaminated well above levels considered appropriate for open water marine life, but not generally to the level of hazardous waste. Total DDT contamination is shown, in the figure to the left, as a function of location in Consolidated Slip and

with depth to approximately 20 feet below surface. Figures displaying lead and PAHs contamination are shown on the following page.

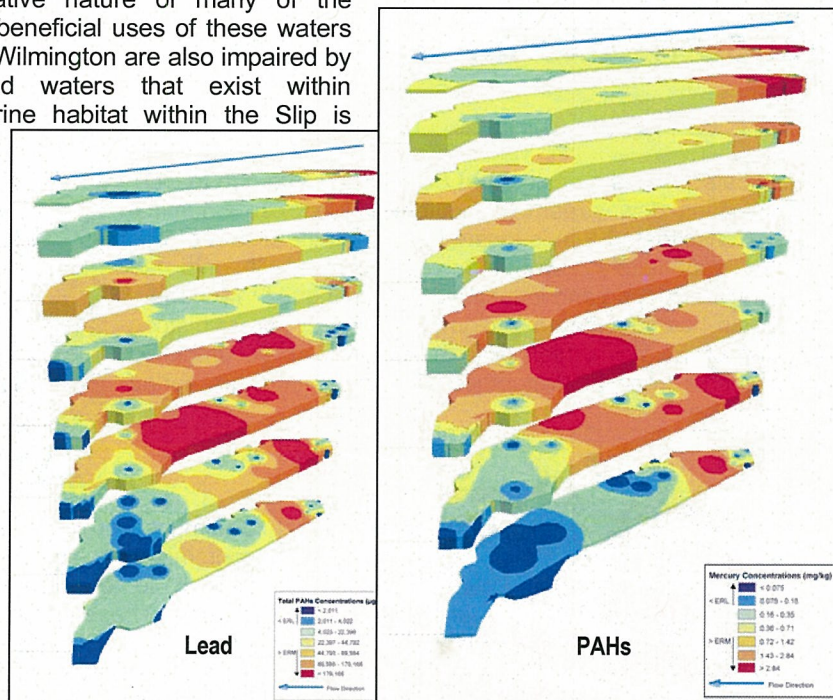
General Levels of Sediment Contamination in Consolidated Slip

Contaminant	Consolidated Slip Concentration Ranges (mg/kg-dry)	Reference Values (mg/kg)		
		ERL	ERM	Title 22 Wet Wt
Copper	5.4-3600	34	270	2500
Lead ¹	2.2-1100	46.7	218	1000
Mercury	0.022-8.8	0.15	0.696	20
Zinc	31-5400	150	410	5000
Total DDT ²	ND-1.922	0.00158	0.0461	1
Total PAHs	ND-1800	4.022	44.792	
PCBs	0.016-16.88	0.0227	0.180	50

1. Two outliers reported at 2700 and 2900 mg/kg- dry. 2. One outlier reported at 48.4 mg/kg-dry.

A major concern is the continued transport of these heavily contaminated sediments by physical and biological transport processes further down into the Harbor and nearby coastal waters, especially serious because of the bioaccumulative nature of many of the contaminants present. Local beneficial uses of these waters off the shoreline of the City of Wilmington are also impaired by the polluted sediments and waters that exist within Consolidated Slip. The marine habitat within the Slip is heavily degraded.

For the purpose of estimating pollutant load reductions, the top two feet of sediment in Consolidated Slip is considered to be available through a combination of erosion, bioturbation, and food chain transfer. Concentrations in this layer were estimated from the median of contaminants in the top two strata. The total number of pounds of each contaminant of concern that will be made unavailable as a result of proposed dredging and capping processes are summarized below.



Expected Pollutant Load Reductions in Pounds

Contaminant	Cu	Pb	Hg	Zn	DDT	PAHs	PCBs
Total Pounds	23,000	32,000	65	98,000	66	1,300	91

Such loads can have a very significant continuing impact on sediment and water quality in the greater Los Angeles Harbor Complex. For example, this amount of DDT would be capable of contaminating sediments throughout the Port of Los Angeles/Long Beach complex to a depth of 6 inches (15 cm) at a concentration of roughly 6 ug/Kg, about 20 times the estimated screening levels developed in Oregon (0.3 ug/kg) for marine sediments by use of bioaccumulative risk analyses methods (human fish consumption).

Maintenance and deepening dredging has taken place within the Port and more is planned as part of the Channel Deepening and Port improvement projects. Total dredge volumes of approximately 81 million cubic yards have or will soon be removed by deepening down to virgin sediments removing extensive contamination from the majority of the Port. These virgin sediments would have non-detect levels of DDT.

Plate 1 (Attached) shows the general median DDT concentrations previously in surface sediments in the early 1990's. Color coding starts at Non-Detect to the ERL level where toxic effects might be expected, the ERL to ERM level where toxic effects are likely, then at multiples of 10 of the ERM level.

Plate 2 (Attached) shows the area of Port bottom sediments dredged to virgin sediments, buried, or capped. Thus the majority of the Port bottom has been removed or covered. Recent DDT concentrations in bottom sediments (Plate 2) did not go to zero as a result of this deep dredging, probably due to recontamination of fine sediments in thin layers still moving within the Port. However, thick layers of DDT contamination were removed and bottom sediment concentrations were significantly reduced. Consolidated Slip remains with a thick layer (>20 feet) of highly contaminated sediments with DDT bottom sediment concentrations exceeding many hundreds of ug/kg and some extremes approaching hazardous waste levels.

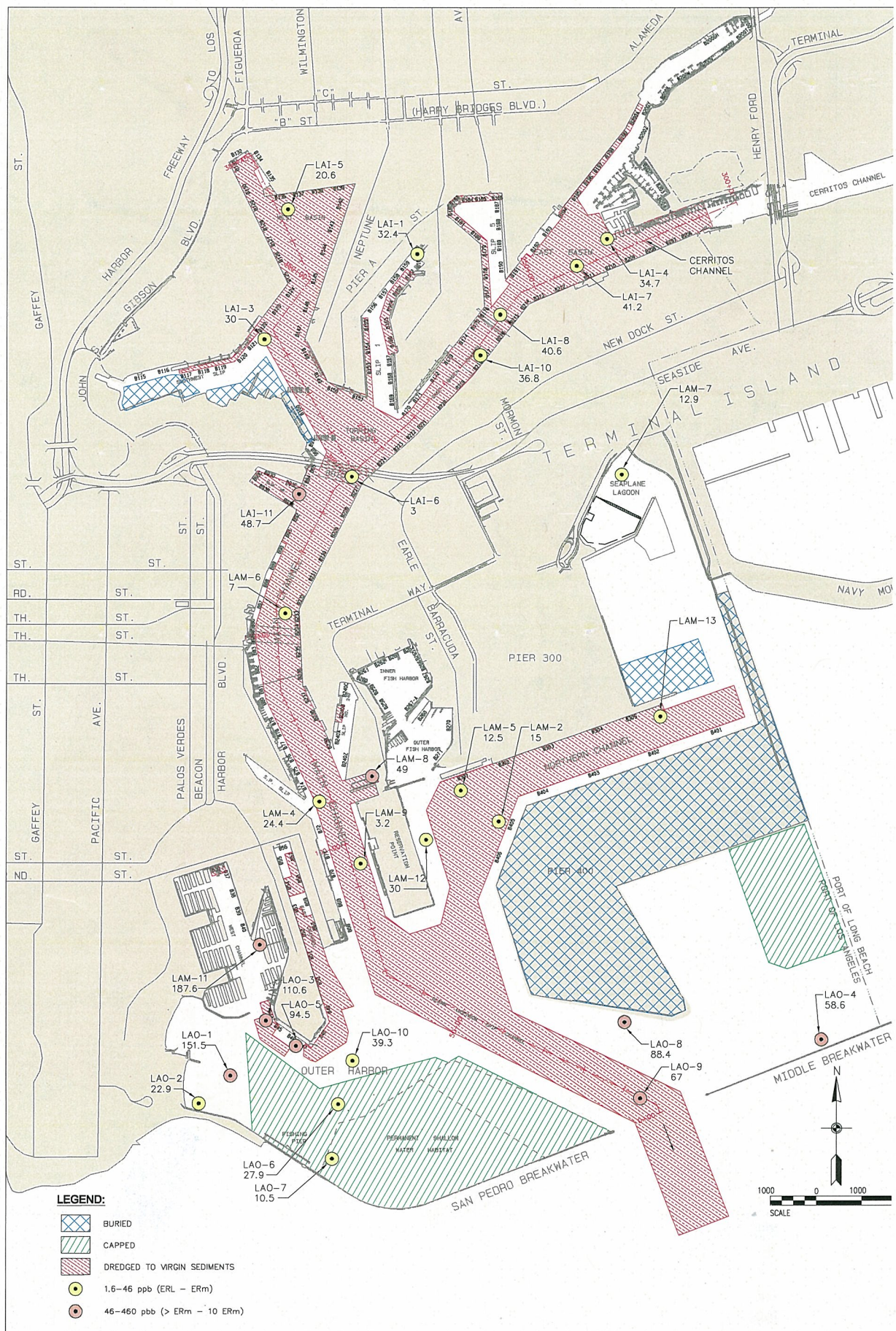


PLATE 2 : RECENT SURFACE DDT CONCENTRATIONS AFTER PORT OF LOS ANGELES IMPROVEMENT PROJECTS, FINISHED OR UNDERWAY.